

## GENE-QM67

Intel® 2nd Generation  
Core™ i5/Celeron® Processor  
10/100/1000Base-TX Ethernet  
8 USB2.0, 4 COM, 8-bit Digital I/O  
2 SATA 6.0Gb/s (Optional RAID)  
CFast™  
1 Mini Card, LPC

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## Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1 GENE-QM67
- 1 Cooler
- 1 DVD-ROM for Manual (in PDF Format) and Drivers

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

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**Chapter**

**1**

# **General Information**

## 1.1 Introduction

---

The GENE-QM67 supports Intel® 2<sup>nd</sup> Generation Intel® Core™ i5 Mobile/Celeron® processor which when paired with the Intel® QM67 chipset offers a high performance computing platform with low power consumption. This new product supports 204-pin DDR3 SODIMM at speeds of 1066/1333 MHz, up to 8 GB.

One CFast™ and two SATA 6.0Gb/s (Optional RAID) interfaces provide ample storages. With dual Gigabit Ethernet, four COM ports, and eight USB2.0, the GENE-QM67 meets the requirements of today's demanding applications.

Display requirements are met with an abundance of interfaces such as CRT, DVI, and LVDS. The graphic engine adopts 2<sup>nd</sup> generation Intel® QM67 to offer high definition display function. In addition, it supports up to two 24-bit Dual-Channel LVDS, and one DVI output interface.

With all of its integrated features, the GENE-QM67 strikes a balance of performance and price. This versatile product targets Industrial Automation, Entertainment, Networking, KIOSK/POS, Transportation, Banking, Healthcare and Digital Signage applications that require high performance and high reliability.

## 1.2 Features

- Intel® 2nd Generation Core™ i5 Mobile/Celeron® (32nm) Processor
- Intel® QM67
- 204-pin DDR3 1066/1333 MHz SODIMM x 1, Up to 8 GB
- Gigabit Ethernet x 2
- CRT, 18/24-bit Dual-Channel LVDS LCD x 2, DVI x 1
- 2CH HD Audio
- SATA 6.0Gb/s x 2 (Optional RAID), CFast™ x 1
- USB2.0 x 8, COM x 4, 8-bit Digital I/O
- Mini Card x 1
- +12V Only Operation
- Supports iAMT with Intel® QM67

### 1.3 Specifications

#### System

- **Form Factor** 3.5"
- **Processor** Intel® 2<sup>nd</sup> Generation Core™i5 / Celeron® (32nm) processor
- **System Memory** 204-pin DDR3 1066/1333 MHz SODIMM x 1, up to 8GB
- **Chipset** Intel® QM67
- **Ethernet** Intel® 82579LM & Realtek RTL-8111E, 10/100/1000Base-TX, RJ-45 x 2
- **BIOS** AMI BIOS-8MB SPI Flash
- **Wake On LAN** Yes
- **Watchdog Timer** Generates a time-out system reset
- **H/W Status Monitoring** Supports power supply voltages and temperature monitoring
- **Expansion Interface** Mini Card x 1, LPC
- **Battery** Lithium Battery
- **Power Requirement** +12V, AT/ATX
- **Board Size** 5.75" x 4" (146mm x 101.6mm)
- **Gross Weight** 0.88 lb (0.4Kg)
- **Operating Temperature** 32°F~140°F (0°C~60°C)
- **Storage Temperature** -40°F~176°F (-40°C~80°C)
- **Operating Humidity** 0% ~ 90% relative humidity, non-condensing

**Display: Supports CRT/LCD, DVI/LCD simultaneous / dual view displays**

- **Chipset** Intel® QM67 integrated
- **Memory** Shared system memory up to 512MB
- **Resolution** Up to 2048x1536 for CRT  
Up to 1920 x 1200 for LCD, DVI
- **DVI** DVI x 1

**I/O: ITE IT8728F + Fintek F81216D**

- **Storage** SATA 6.0Gb/s x 2 , CFast™ x 1
- **Serial Port** RS-232 x 3  
RS-232/422/485 (auto flow) x 1
- **USB** USB2.0 x 8
- **PS/2 Port** Keyboard x 1, Mouse x 1
- **Digital I/O** 8-bit Programmable
- **Audio** Line-in, Line-out, Mic-in

**Chapter**

**2**

**Quick  
Installation  
Guide**

## 2.1 Safety Precautions

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**Warning!**

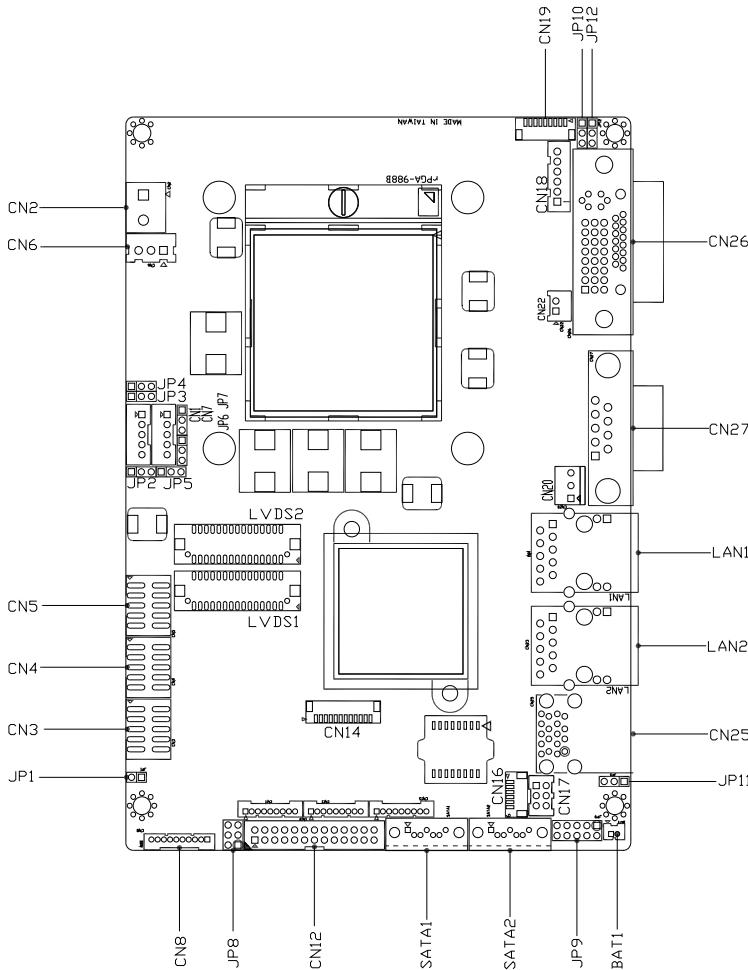
*Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.*

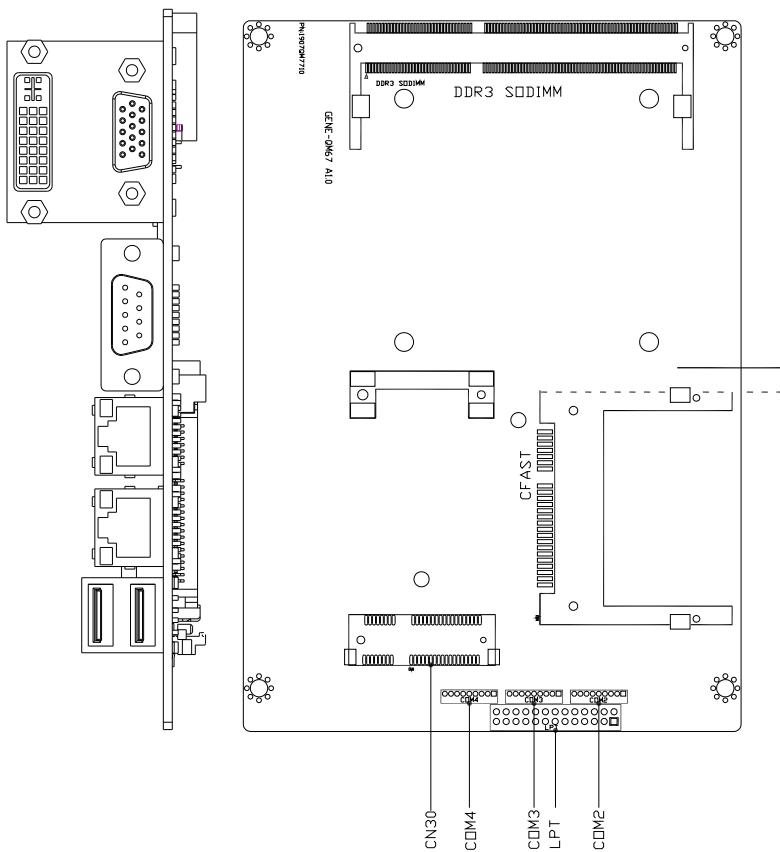
**Caution!**

*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis*

## 2.2 Location of Connectors and Jumpers

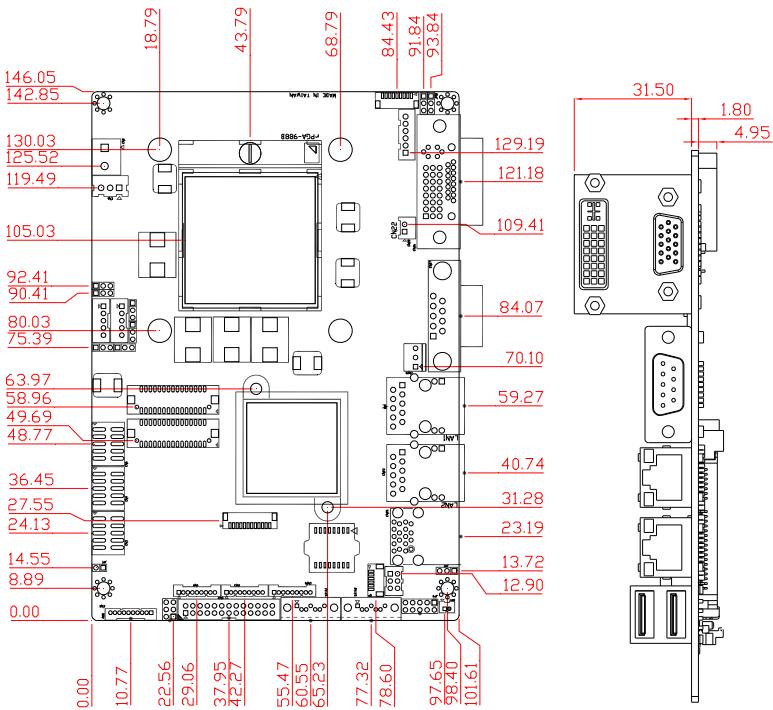
## Component Side



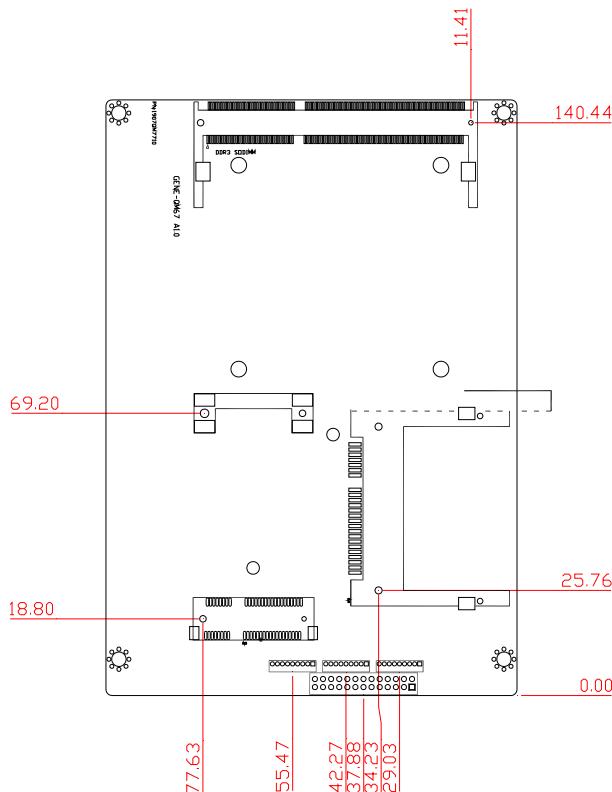
**Solder Side**

## 2.3 Mechanical Drawing

### Component Side



## Solder Side



## 2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Label	Function
JP2	LVDS Port 2 Operating VDD Selection
JP3	LVDS Port 1 Backlight Inverter VCC Selection
JP4	LVDS Port 2 Backlight Inverter VCC Selection
JP5	LVDS Port 1 Operating VDD Selection
JP6	LVDS Port 1 Backlight Lightness Control Mode Selection
JP7	LVDS Port 2 Backlight Lightness Control Mode Selection
JP8	COM2 Pin8 Function Selection
JP9	Front Panel Connector
JP10	Touch Screen 4/5/8-wire Mode Selection
JP11	Clear CMOS Selection
JP12	AT/ATX Power Supply Mode Selection

## 2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application.

The table below shows the function of each of the board's connectors:

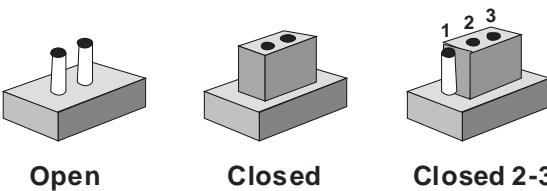
Label	Function
CN1	LVDS Port 1 Inverter / Backlight Connector
CN2	External +12V Input
CN3	USB2.0 Port 7 and 8
CN4	USB2.0 Port 5 and 6
CN5	USB2.0 Port 3 and 4
CN6	External +5VSB Input
CN7	LVDS Port 2 Inverter / Backlight Connector

CN8	Audio I/O Port
CN9	LVDS Port 1
CN10	LVDS Port 2
CN11	COM Port 2
CN12	LPT / Digital IO Port
CN13	COM Port 3
CN15	COM Port 4
CN16	UIM Card Module
CN17	PS/2 Keyboard/Mouse Combo Port
CN18	+5VSB Output with SMBus
CN19	Touch Screen Connector
CN20	CPU FAN
CN22	+5V Output for SATA HDD
CN23	Realtek LAN (RJ-45) Port
CN24	Intel LAN (RJ-45) Port
CN25	USB Ports 1 and 2
CN26	VGA / DVI Ports (depend on hardware configuration)
CN27	COM Port 1 (D-SUB 9)
CN28	CFast™ Slot
CN29	DDR3 SODIMM Slot
CN30	Mini Card Slot
SATA1	SATA Port 1 Connector
SATA2	SATA Port 2 Connector

## 2.6 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

**2.7 LVDS Port 2 Operating VDD Selection (JP2)**

JP2	Function
1-2	+5V
2-3	+3.3V (Default)

**2.8 LVDS Port 1 Backlight Inverter VCC Selection (JP3)**

JP3	Function
1-2	+12V
2-3	+5V (Default)

**2.9 LVDS Port 2 Backlight Inverter VCC Selection (JP4)**

JP4	Function
1-2	+12V
2-3	+5V (Default)

**2.10 LVDS Port 2 Operating VDD Selection (JP5)**

JP5	Function
1-2	+5V
2-3	+3.3V (Default)

**2.11 LVDS Port 1 Backlight Lightness Control Mode Selection (JP6)**

JP6	Function
1-2	VR Mode (Default)
2-3	PWM Mode

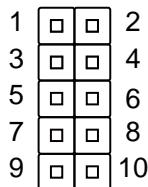
**2.12 LVDS Port 2 Backlight Lightness Control Mode Selection (JP7)**

JP7	Function
1-2	VR Mode (Default)
2-3	PWM Mode

## 2.13 COM2 Pin8 Function Selection (JP8)

JP8	Function
1-2	+12V
3-4	Ring (Default)
5-6	+5V

## 2.14 Front Panel Connector (JP9)



Pin	Signal	Pin	Signal
1	PWRBTN(-)	2	PWRBTN(+)
3	HDLED(-)	4	HDLED(+)
5	SPEAKER(-)	6	SPEAKER(+)
7	PWRLED(-)	8	PWRLED(+)
9	RESET(-)	10	RESET(+)

## 2.15 Touch Screen 4/5/8-wire Selection (JP10)

JP10	Function
1-2	4/8-wire Mode (Default)
2-3	5-wire Mode

## 2.16 Clear CMOS Selection (JP11)

JP11	Function
1-2	Normal (Default)
2-3	Clear CMOS

## 2.17 AT/ATX Power Supply Mode Selection (JP12)

JP12	Function
1-2	AT Mode (Default)
2-3	ATX Mode

## 2.18 LVDS Port 1 Inverter/Backlight Connector (CN1)

Pin	Signal
1	VDD
2	BKL_CTL
3	GND
4	GND
5	BKL_EN

**Note:**

LVDS1 VDD can be set to +5V or +12V by JP3. LVDS1 BKL\_CTL can be set by JP6.

## 2.19 External +12V Input Connector (CN2)

Pin	Signal
1	+12V
2	GND

## 2.20 USB2.0 Port 7 and 8 (CN3)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	D-	4	GND
5	D+	6	D+
7	GND	8	D-
9	GND	10	+5V

**2.21 USB2.0 Port 5 and 6 (CN4)**

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	D-	4	GND
5	D+	6	D+
7	GND	8	D-
9	GND	10	+5V

**2.22 USB2.0 Port 3 and 4 (CN5)**

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	D-	4	GND
5	D+	6	D+
7	GND	8	D-
9	GND	10	+5V

**2.23 External +5VSB Input (CN6)**

Pin	Signal
1	PSON#
2	GND
3	+5VSBY

**2.24 LVDS Port 2 Inverter/Backlight Connector (CN7)**

Pin	Signal
1	VDD
2	BKL_CTL
3	GND
4	GND
5	BKL_EN

**UNote:**

LVDS2 VDD can be set to +5V or +12V by JP4. LVDS2 BKL\_CTL can be set by JP7.

**2.25 Audio I/O Port (CN8)**

Pin	Signal
1	Microphone Left Channel
2	Microphone Left Channel
3	GND
4	Line-In Left Channel
5	Line-In Right Channel
6	GND
7	Line-Out Left Channel
8	GND
9	Line-Out Right Channel
10	+5V

**2.26 LVDS Port 1 (CN9)**

Pin	Signal	Pin	Signal
1	BKL_EN	2	BKL_CTL
3	VCC	4	GND
5	CLK_A-	6	CLK_A+
7	VCC	8	GND
9	DATA_A0-	10	DATA_A0+
11	DATA_A1-	12	DATA_A1+
13	DATA_A2-	14	DATA_A2+
15	DATA_A3-	16	DATA_A3+
17	DDC_DAT	18	DDC_CLK
19	DATA_B0-	20	DATA_B0+
21	DATA_B1-	22	DATA_B1+

23	DATA_B2-	24	DATA_B2+
25	DATA_B3-	26	DATA_B3+
27	VCC	28	GND
29	CLK_B-	30	CLK_B+

Note: LVDS1 VCC can be set by JP5.

## 2.27 LVDS Port 2 (CN10)

Pin	Signal	Pin	Signal
1	BKL_EN	2	BKL_CTL
3	VCC	4	GND
5	CLK_A-	6	CLK_A+
7	VCC	8	GND
9	DATA_A0-	10	DATA_A0+
11	DATA_A1-	12	DATA_A1+
13	DATA_A2-	14	DATA_A2+
15	DATA_A3-	16	DATA_A3+
17	DDC_DAT	18	DDC_CLK
19	DATA_B0-	20	DATA_B0+
21	DATA_B1-	22	DATA_B1+
23	DATA_B2-	24	DATA_B2+
25	DATA_B3-	26	DATA_B3+
27	VCC	28	GND
29	CLK_B-	30	CLK_B+

Note: LVDS2 VCC can be set by JP2.

## 2.28 COM Port 2 (CN11)

Pin	RS-232	RS-422	RS-485
1	DCD	TX-	B (Data-)
2	DSR	N.C	N.C

3	RX	RX+	N.C
4	RTS	N.C	N.C
5	TX	TX+	A (Data+)
6	CTS	N.C	N.C
7	DTR	RX-	N.C
8	RI	+5V/+12V	+5V/+12V
9	GND	GND	GND

**Note:**

COM2 RS-232/422/485 can be set by BIOS setting. Default is RS-232. Pin 8 function can be set by JP8.

## **2.29 LPT/ Digital I/O Port (CN12)**

This connector offers 4-pair of digital I/O functions and address is A06h and A07h. The pin definitions are illustrated below:

Pin	Signal	Pin	Signal
1	DIO_P#1	2	DIO_P#2
3	DIO_P#3	4	DIO_P#4
5	DIO_P#5	6	DIO_P#6
7	DIO_P#7	8	DIO_P#8
9	+5V	10	GND

BIOS Setting	Connector Definition	Address	IT8728F GPIO Setting
Port 8 @A07h	Pin 8	GPIO Set 8 / Bit 3	U18 Pin103(GPIO 83)
Port 7 @A07h	Pin 7	GPIO Set 8 / Bit 2	U18 Pin102(GPIO 82)
Port 6 @A07h	Pin 6	GPIO Set 8 / Bit 1	U18 Pin101(GPIO 81)
Port 5 @A07h	Pin 5	GPIO Set 8 / Bit 0	U18 Pin100(GPIO 80)
Port 4 @A06h	Pin 4	GPIO Set 7 / Bit 3	U18 Pin111(GPIO 73)

Port 3 @A06h	Pin 3	GPIO Set 7 / Bit 2	U18 Pin110(GPIO 72)
Port 2 @A06h	Pin 2	GPIO Set 7 / Bit 1	U18 Pin109(GPIO 71)
Port 1 @A06h	Pin 1	GPIO Set 7 / Bit 0	U18 Pin108(GPIO 70)

**LPT Mode**

Pin	Signal	Pin	Signal
1	STROBE#	2	AFD#
3	D0	4	ERR#
5	D1	6	PRINT#
7	D2	8	SLIN#
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	N.C

**Digital I/O Mode**

Pin	Signal	Pin	Signal
1	N.C	2	N.C
3	D0	4	N.C
5	D1	6	N.C
7	D2	8	N.C
9	D3	10	GND
11	N.C	12	GND
13	N.C	14	GND

15	N.C	16	GND
17	N.C	18	GND
19	D7	20	GND
21	D6	22	GND
23	D5	24	GND
25	D4	26	N.C

**Note:** LPT / Digital IO can be set by BIOS setting. Default is LPT Function.

### 2.30 COM Port 3 (CN13)

Pin	Signal
1	DCD
2	DSR
3	RX
4	RTS
5	TX
6	CTS
7	DTR
8	RI
9	GND

### 2.31 LPC Port (CN14)

Pin	Signal
1	AD0
2	AD1
3	AD2
4	AD3
5	+3.3VCC
6	FRAME#
7	RESET#
8	GND

---

9	33MCLK
10	DRQ0#
11	DRQ1#
12	SERIRQ

---

### 2.32 COM Port 4 (CN15)

---

Pin	Signal
1	DCD
2	DSR
3	RX
4	RTS
5	TX
6	CTS
7	DTR
8	RI
9	GND

---

### 2.33 UIM Card Module (CN16)

---

Pin	Signal
1	PWR
2	RST
3	CLK
4	GND
5	VPP
6	DAT

---

### 2.34 PS/2 Keyboard/Mouse Combo Port (CN17)

---

Pin	Signal	Pin	Signal
1	KB_DAT	2	KB_CLK

---

3	GND	4	+5V
5	MS_DAT	6	MS_CLK

### 2.35 +5VSB Output with SMBus (CN18)

Pin	Signal
1	SMB_DAT
2	GND
3	SMB_CLK
4	GND
5	PSON#
6	+5VSB

### 2.36 Touch Screen Connector (CN19)

8-wire

Pin	Signal
1	GND
2	TOP_EXC
3	BOTTOM_EXC
4	LEFT_EXC
5	RIGHT_EXC
6	TOP_SENSE
7	BOTTOM_SENSE
8	LEFT_SENSE
9	RIGHT_SENSE

4-wire

Pin	Signal
1	GND
2	TOP
3	BOTTOM
4	LEFT

5	RIGHT
6	N.C
7	N.C
8	N.C
9	N.C

**5-wire**

Pin	Signal
1	GND
2	UL(Y-)
3	UR(Y+)
4	LL(X-)
5	LR(X+)
6	SENSE
7	N.C
8	N.C
9	N.C

**2.37 CPU FAN (CN20)**

Pin	Signal
1	GND
2	VDD
3	TACH

**2.38 +5V Output for SATA HDD (CN22)**

Pin	Signal
1	+5V
2	GND

**2.39 Realtek LAN (RJ-45) Port (CN23)**

Pin	Signal
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-

**2.40 Intel LAN (RJ-45) Port (CN24)**

Pin	Signal
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-

**2.41 USB Port 1 and 2 (CN25)**

Pin	Signal
1	VCC (+5V)
2	D-
3	D+
4	GND

**2.42 VGA/ DVI Ports (depends on hardware configuration) (CN26)****VGA**

Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	N.C
5	GND	6	RED_RTN
7	GREEN_RTN	8	BLUE_RTN
9	+5V	10	GND
11	N.C	12	DDC Data
13	HSYNC	14	VSYNC
15	DDC Clock		

**DVI**

Pin	Signal	Pin	Signal
1	TMDS Data 2-	2	TMDS Data 2+
3	GND	4	Analog DDC Clock*
5	Analog DDC Data*	6	DDC Clock
7	DDC Data	8	Analog VSYNC
9	TMDS Data 1-	10	TMDS Data 1+
11	GND	12	TMDS Data 3-
13	TMDS Data 3+	14	+5V
15	GND	16	Hot Plug Detect
17	TMDS data 0-	18	TMDS data 0+
19	GND	20	N.C
21	N.C	22	GND
23	TMDS clock+	24	TMDS clock-
C1	Analog red	C2	Analog green
C3	Analog blue	C4	Analog HSYNC
C5	Analog ground		

## 2.43 COM Port 1 (D-SUB 9) (CN27)

Pin	Signal	Pin	Signal
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI
5	GND		

## 2.44 CFast™ Slot (CN28)

Pin	Signal
S1	GND
S2	A+
S3	A-
S4	GND
S5	B-
S6	B+
S7	GND
PC1	N.C
PC2	GND
PC3	N.C
PC4	N.C
PC5	N.C
PC6	N.C
PC7	GND
PC8	N.C
PC9	N.C
PC10	N.C
PC11	N.C
PC12	N.C

PC13	+3.3V
PC14	+3.3V
PC15	GND
PC16	GND
PC17	N.C

## 2.45 DDR3 SODIMM Slot (CN29)

Standard specification

## 2.46 Mini Card Slot (CN30)

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	+3.3VSB
3	N.C	4	GND
5	N.C	6	+1.5V
7	CLK_REQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	CLK-	12	UIM_CLK
13	CLK+	14	UIM_RESET
15	GND	16	UIM_VPP
17	N.C	18	GND
19	N.C	20	Wireless DISABLE#
21	GND	22	Reset#
23	RX-	24	+3.3VSB
25	RX+	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	TX-	32	SMB_DATA
33	TX+	34	GND
35	GND	36	USB_D-

37	GND	38	USB_D+
39	+3.3VSB	40	GND
41	+3.3VSB	42	N.C
43	GND	44	N.C
45	N.C	46	N.C
47	N.C	48	+1.5V
49	N.C	50	GND
51	N.C	52	+3.3VSB

## **2.47 SATA Port 1 (SATA1)**

Standard specification

## **2.48 SATA Port 2 (SATA2)**

Standard specification

## 2.49 Cooler & Fan Installations

Please follow the installation steps to make sure the proper installation of the cooler and fan.

Step 1: Check the cable's location to see if it is on the left-up corner



Step 2: Fasten the screw at the left-down side first



Step 3 : Fasten the screw at the right-up side



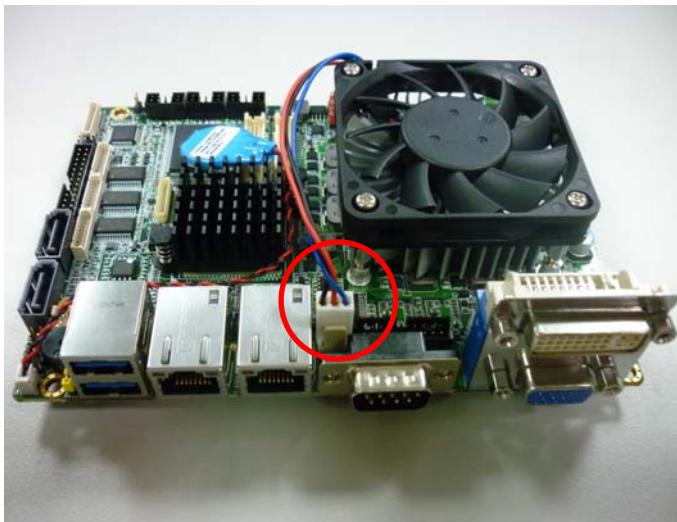
Step 4 : Fasten the screw at the right-down side



Step 5 : Fasten the screw at the left-up side as the picture



Step 6 : Connect the Fan Cable to the Fan Connector



## Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○

**O:** 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

**X:** 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

**备注:** 此产品所标示之环保使用期限, 系指在一般正常使用状况下。

Chapter

3

**AMI  
BIOS Setup**

### 3.1 System Test and Initialization

---

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

#### **System configuration verification**

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

The GENE-QM67 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

## 3.2 AMI BIOS Setup

---

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

### Entering Setup

Power on the computer and press **<Del>** or **<F2>** immediately. This will allow you to enter Setup.

### Main

Set the date, use tab to switch between date elements.

### Advanced

Enable disable boot option for legacy network devices.

### Chipset

host bridge parameters.

### Boot

Enables/disable quiet boot option.

### Security

Set setup administrator password.

### Save&Exit

Exit system setup after saving the changes.

#### Note:

1. If the "Onboard LVDS2 (CH7511)" has been set "Disable," the status of "Primary IGFx Boot Display" is "Auto Detect." The screen cannot be

switched to LVDS2 under the OS.

2. If the "**Onboard LVDS2 (CH7511)**" has been set "**Enable**," the status of the "**Primary IGFx Boot Display**" is concealed. The screen can be switched to LVDS2 under the OS.

Chapter

4

# Driver Installation

The GENE-QM67 comes with an AutoRun DVD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver DVD, the driver DVD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

***Follow the sequence below to install the drivers:***

- Step 1 – Install Chipset Driver
- Step 2 – Install VGA Driver
- Step 3 – Install LAN1 Driver (Intel® LAN Chip)
- Step 4 – Install LAN2 Driver (Realtek LAN Chip)
- Step 5 – Install Audio Driver
- Step 6 – Install ME Driver
- Step 7 – Install RAID & AHCI Driver
- Step 8 – Install TPM Driver
- Step 9 – Install Touch Driver

Please read instructions below for further detailed installations.

#### 4.1 Installation:

Insert the GENE-QM67 DVD-ROM into the DVD-ROM drive. And install the drivers from Step 1 to Step 9 in order.

##### Step 1 – Install Chipset Driver

Click on the **STEP 1-CHIPSET** folder and double click on the **infinst\_autol.exe** file

1. Follow the instructions that the window shows
2. The system will help you install the driver automatically

##### Step 2 – Install VGA Driver

1. Click on the **STEP2-VGA** folder and select the OS folder your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

##### Note 1:

- This motherboard supports VGA and LVDS display devices. In Single Display mode, use the hot keys to switch between VGA to LVDS device or vice versa. By default, press **<Ctrl>+<Alt>+<F1>** to switch to VGA device and press **<Ctrl>+<Alt>+<F3>** to switch to LVDS device.
- Before removing the current display device, connect the display device that you want to use, and then press the hot keys to switch to that device.

**Note 2:** If the OS is Windows® XP, you have to install the driver of dotNet Framework first. Simply click on **dotnetfx35.exe** located in **dotNet Framework** folder.

### Step 3 –Install LAN1 Driver (Intel® LAN Chip)

1. Click on the **STEP3-LAN1** folder and select the OS folder your system is
2. Double click on the **.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

### Step 4 –Install LAN2 Driver (Realtek LAN Chip)

1. Click on the **STEP4-LAN2** folder and select the OS folder your system is
2. Double click on the **setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

### Step 5 –Install Audio Driver

1. Click on the **STEP5-AUDIO** folder and select the OS folder your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

### Step 6 – Install ME Driver

1. Click on the **STEP6-ME SW** folder and select the OS folder

your system is

2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### Step 7 – Install RAID & AHDI Driver

Please refer to the **Appendix D RAID & AHDI Settings**

#### Step 8 – Install TPM Driver

1. Click on the **STEP8-TPM DRIVER** folder and select the OS folder your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### Step 9 –Install Touch Driver

1. Click on the **STEP9-TOUCH** folder and select the OS folder your system is
2. Double click on the **Setup.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Appendix

A

# Programming the Watchdog Timer

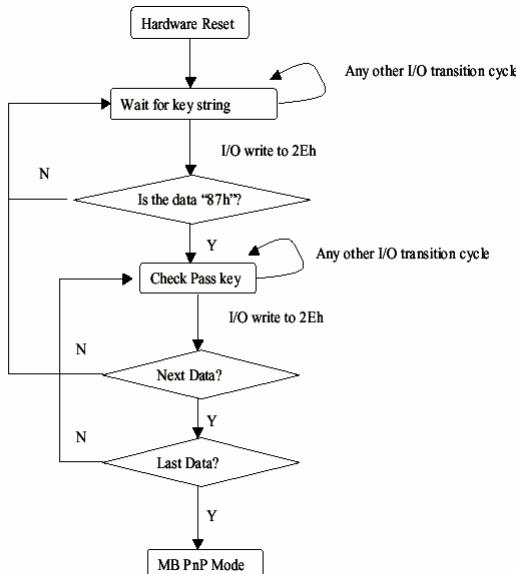
## A.1 Programming

GENE-QM67 utilizes ITE IT8728F chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON intial watchdog timer program is also attached based on which you can develop customized program to fit your application.

### Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8728F enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit ) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

### **(1) Enter the MB PnP Mode**

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh                    2Fh

### **(2) Modify the Data of the Registers**

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

### **(3) Exit the MB PnP Mode**

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

### WatchDog Timer Configuration Registers

#### LDN Index R/W Reset Configuration Register or Action

All	02H	W	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value Register

#### Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

##### Bit Description

7-2 Reserved

1 Returns to the Wait for Key state. This bit is used when the configuration sequence is completed

0 Resets all logical devices and restores configuration registers to their power-on states.

**WatchDog Timer Control Register (Index=71h, Default=00h)**

<b>Bit</b>	<b>Description</b>
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT Status
	1: WDT value reaches 0.
	0: WDT value is not 0

**WatchDog Timer Configuration Register (Index=72h, Default=00h)**

<b>Bit</b>	<b>Description</b>
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5-4	Reserved
3-0	Select the interrupt level <sup>Note</sup> for WDT

**WatchDog Timer Time-out Value Register (Index=73h, Default=00h)**

<b>Bit</b>	<b>Description</b>
7-0	WDT Time-out value 7-0

## A.2 ITE8728F Watchdog Timer Initial Program

---

```
.MODEL SMALL
```

```
.CODE
```

Main:

```
CALL Enter_Configuration_mode
```

```
CALL Check_Chip
```

```
mov cl, 7
```

```
call Set_Logic_Device
```

```
;time setting
```

```
mov cl, 10 ; 10 Sec
```

```
dec al
```

Watch\_Dog\_Setting:

```
;Timer setting
```

```
mov al, cl
```

```
mov cl, 73h
```

```
call Superio_Set_Reg
```

```
;Clear by keyboard or mouse interrupt
```

```
mov al, 0f0h
```

```
mov cl, 71h
```

```
call Superio_Set_Reg
```

```
;unit is second.
```

```
mov al, 0C0H
```

```
mov cl, 72h
```

```
call Superio_Set_Reg
```

```
; game port enable
mov cl, 9
call Set_Logic_Device
```

```
Initial_OK:
CALL Exit_Configuration_Mode
MOV AH,4Ch
INT 21h
```

```
Enter_Configuration_Mode PROC NEAR
MOV SI,WORD PTR CS:[Offset Cfg_Port]
```

```
MOV DX,02Eh
MOV CX,04h
Init_1:
MOV AL,BYTE PTR CS:[SI]
OUT DX,AL
INC SI
LOOP Init_1
RET
Enter_Configuration_Mode ENDP
```

```
Exit_Configuration_Mode PROC NEAR
MOV AX,0202h
CALL Write_Configuration_Data
```

RET

Exit\_Configuration\_Mode ENDP

Check\_Chip PROC NEAR

MOV AL,20h

CALL Read\_Configuration\_Data

CMP AL,87h

JNE Not\_Initial

MOV AL,21h

CALL Read\_Configuration\_Data

CMP AL,12h

JNE Not\_Initial

Need\_Initial:

STC

RET

Not\_Initial:

CLC

RET

Check\_Chip ENDP

Read\_Configuration\_Data PROC NEAR

MOV DX,WORD PTR CS:[Cfg\_Port+04h]

OUT DX,AL

```
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP
```

```
Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP
```

```
Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
Set_Logic_Device proc near
```

```
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp
```

;Select 02Eh->Index Port, 02Fh->Data Port  
Cfg\_Port DB 087h,001h,055h,055h

DW 02Eh,02Fh

## END Main

*Note: Interrupt level mapping*

0Fh-Dh: not valid

0Ch: IRQ12

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected

**Appendix**

**B**

## **I/O Information**

## B.1 I/O Address Map

- ▲  Input/output (IO)
  - [00000000 - 0000001F] Direct memory access controller
  - [00000000 - 00000CF7] PCI bus
  - [00000010 - 0000001F] Motherboard resources
  - [00000020 - 00000021] Programmable interrupt controller
  - [00000022 - 0000003F] Motherboard resources
  - [00000024 - 00000025] Programmable interrupt controller
  - [00000028 - 00000029] Programmable interrupt controller
  - [0000002C - 0000002D] Programmable interrupt controller
  - [0000002E - 0000002F] Motherboard resources
  - [00000030 - 00000031] Programmable interrupt controller
  - [00000034 - 00000035] Programmable interrupt controller
  - [00000038 - 00000039] Programmable interrupt controller
  - [0000003C - 0000003D] Programmable interrupt controller
  - [00000040 - 00000043] System timer
  - [00000044 - 0000005F] Motherboard resources
  - [0000004E - 0000004F] Motherboard resources
  - [00000050 - 00000053] System timer
  - [00000060 - 00000060] Standard PS/2 Keyboard
  - [00000061 - 00000061] Motherboard resources
  - [00000062 - 00000063] Motherboard resources
  - [00000063 - 00000063] Motherboard resources
  - [00000064 - 00000064] Standard PS/2 Keyboard
  - [00000065 - 00000065] Motherboard resources
  - [00000065 - 0000006F] Motherboard resources
  - [00000067 - 00000067] Motherboard resources
  - [00000070 - 00000070] Motherboard resources
  - [00000070 - 00000077] System CMOS/real time clock
  - [00000072 - 0000007F] Motherboard resources
  - [00000080 - 00000080] Motherboard resources
  - [00000080 - 00000080] Motherboard resources
  - [00000081 - 00000091] Direct memory access controller
  - [00000084 - 00000086] Motherboard resources
  - [00000088 - 00000088] Motherboard resources
  - [0000008C - 0000008E] Motherboard resources
  - [00000090 - 0000009F] Motherboard resources
  - [00000092 - 00000092] Motherboard resources
  - [00000093 - 0000009F] Direct memory access controller
  - [000000A0 - 000000A1] Programmable interrupt controller
  - [000000A2 - 000000BF] Motherboard resources
  - [000000A4 - 000000A5] Programmable interrupt controller
  - [000000A8 - 000000A9] Programmable interrupt controller
  - [000000AC - 000000AD] Programmable interrupt controller
  - [000000B0 - 000000B1] Programmable interrupt controller
  - [000000B2 - 000000B3] Motherboard resources
  - [000000B4 - 000000B5] Programmable interrupt controller
  - [000000B8 - 000000B9] Programmable interrupt controller

- [ ] [000000BC - 000000BD] Programmable interrupt controller
- [ ] [000000C0 - 000000DF] Direct memory access controller
- [ ] [000000E0 - 000000EF] Motherboard resources
- [ ] [000000F0 - 000000FF] Numeric data processor
- [+] [000002E8 - 000002EF] Communications Port (COM4)
- [+] [000002F8 - 000002FF] Communications Port (COM2)
- [+] [00000378 - 0000037F] Printer Port (LPT1)
- [ ] [000003B0 - 000003BB] Intel(R) HD Graphics Family
- [ ] [000003C0 - 000003DF] Intel(R) HD Graphics Family
- [+] [000003E8 - 000003EF] Communications Port (COM3)
- [+] [000003F8 - 000003FF] Communications Port (COM1)
- [ ] [00000400 - 00000453] Motherboard resources
- [ ] [00000454 - 00000457] Motherboard resources
- [+] [00000458 - 0000047F] Motherboard resources
- [+] [000004D0 - 000004D1] Motherboard resources
- [ ] [000004D0 - 000004D1] Programmable interrupt controller
- [+] [00000500 - 0000057F] Motherboard resources
- [+] [00000680 - 0000069F] Motherboard resources
- [+] [00000A00 - 00000A1F] Motherboard resources
- [+] [00000A20 - 00000A2F] Motherboard resources
- [+] [00000A30 - 00000A3F] Motherboard resources
- [+] [00000D00 - 0000FFFF] PCI bus
- [+] [00001000 - 0000100F] Motherboard resources
- [+] [0000164E - 0000164F] Motherboard resources
- [+] [0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller
- [+] [0000E000 - 0000EFFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
- [+] [0000F000 - 0000F03F] Intel(R) HD Graphics Family
- [+] [0000F040 - 0000F05F] Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
- [+] [0000F080 - 0000F08F] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
- [+] [0000F090 - 0000F09F] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
- [+] [0000F0A0 - 0000F0A3] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
- [+] [0000F0B0 - 0000F0B7] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
- [+] [0000F0C0 - 0000F0C3] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
- [+] [0000F0D0 - 0000F0D7] Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
- [+] [0000F0E0 - 0000F0EF] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
- [+] [0000F0F0 - 0000F0FF] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
- [+] [0000F100 - 0000F103] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
- [+] [0000F110 - 0000F117] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
- [+] [0000F120 - 0000F123] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
- [+] [0000F130 - 0000F137] Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
- [+] [0000FFFF - 0000FFFF] Motherboard resources
- [+] [0000FFFF - 0000FFFF] Motherboard resources

## B.2 Memory Address Map

	Memory	
1	[000A0000 - 000BFFFF] Intel(R) HD Graphics Family	
2	[000A0000 - 000BFFFF] PCI bus	
3	[000D0000 - 000D3FFF] PCI bus	
4	[000D4000 - 000D7FFF] PCI bus	
5	[000D8000 - 000DBFFF] PCI bus	
6	[000DC000 - 000DFFFF] PCI bus	
7	[000E0000 - 000E3FFF] PCI bus	
8	[000E4000 - 000E7FFF] PCI bus	
9	[20000000 - 201FFFFF] System board	
10	[40000000 - 401FFFFF] System board	
11	[7DA00000 - 7DA00FFF] Motherboard resources	
12	[7DA00000 - FEFFFFFF] PCI bus	
13	[E0000000 - EFFFFFFF] Intel(R) HD Graphics Family	
14	[F0000000 - F0003FFF] Realtek PCIe GBE Family Controller	
15	[F0000000 - F00FFFFF] Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12	
16	[F0004000 - F0004FFF] Realtek PCIe GBE Family Controller	
17	[F7800000 - F7BFFFFF] Intel(R) HD Graphics Family	
18	[F7C00000 - F7C13FFF] Intel(R) 82579LM Gigabit Network Connection	
19	[F7C20000 - F7C23FFF] High Definition Audio Controller	
20	[F7C24000 - F7C24FFF] Intel(R) 6 Series/C200 Series Chipset Family Thermal Control - 1C24	
21	[F7C25000 - F7C250FF] Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22	
22	[F7C26000 - F7C263FF] Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26	
23	[F7C27000 - F7C273FF] Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D	
24	[F7C28000 - F7C28FFF] Intel(R) 82579LM Gigabit Network Connection	
25	[F7C2B000 - F7C2B00F] Intel(R) 6 Series/C200 Series Management Engine Interface - 1C3A	
26	[F8000000 - FBFFFFFF] Motherboard resources	
27	[FED00000 - FED003FF] High precision event timer	
28	[FED10000 - FED17FFF] Motherboard resources	
29	[FED18000 - FED18FFF] Motherboard resources	
30	[FED19000 - FED19FFF] Motherboard resources	
31	[FED1C000 - FED1FFFF] Motherboard resources	
32	[FED20000 - FED3FFFF] Motherboard resources	
33	[FED40000 - FED44FFF] System board	
34	[FED45000 - FED8BFFF] Motherboard resources	
35	[FED90000 - FED93FFF] Motherboard resources	
36	[FEE00000 - FEEFFFFFF] Motherboard resources	
37	[FF000000 - FFFFFFFF] Intel(R) 82802 Firmware Hub Device	
38	[FF000000 - FFFFFFFF] Motherboard resources	

### B.3 IRQ Mapping Chart

Interrupt request (IRQ)	
ISA) 0x00000000 (00)	System timer
ISA) 0x00000001 (01)	Standard PS/2 Keyboard
ISA) 0x00000003 (03)	Communications Port (COM2)
ISA) 0x00000004 (04)	Communications Port (COM1)
ISA) 0x00000008 (08)	System CMOS/real time clock
ISA) 0x0000000A (10)	Communications Port (COM4)
ISA) 0x0000000B (11)	Communications Port (COM3)
ISA) 0x0000000C (12)	Microsoft PS/2 Mouse
ISA) 0x0000000D (13)	Numeric data processor
ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System

ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System

- (ISA) 0x000000A9 (169) Microsoft ACPI-Compliant System
- (ISA) 0x000000AA (170) Microsoft ACPI-Compliant System
- (ISA) 0x000000AB (171) Microsoft ACPI-Compliant System
- (ISA) 0x000000AC (172) Microsoft ACPI-Compliant System
- (ISA) 0x000000AD (173) Microsoft ACPI-Compliant System
- (ISA) 0x000000AE (174) Microsoft ACPI-Compliant System
- (ISA) 0x000000AF (175) Microsoft ACPI-Compliant System
- (ISA) 0x000000B0 (176) Microsoft ACPI-Compliant System
- (ISA) 0x000000B1 (177) Microsoft ACPI-Compliant System
- (ISA) 0x000000B2 (178) Microsoft ACPI-Compliant System
- (ISA) 0x000000B3 (179) Microsoft ACPI-Compliant System
- (ISA) 0x000000B4 (180) Microsoft ACPI-Compliant System
- (ISA) 0x000000B5 (181) Microsoft ACPI-Compliant System
- (ISA) 0x000000B6 (182) Microsoft ACPI-Compliant System
- (ISA) 0x000000B7 (183) Microsoft ACPI-Compliant System
- (ISA) 0x000000B8 (184) Microsoft ACPI-Compliant System
- (ISA) 0x000000B9 (185) Microsoft ACPI-Compliant System
- (ISA) 0x000000BA (186) Microsoft ACPI-Compliant System
- (ISA) 0x000000BB (187) Microsoft ACPI-Compliant System
- (ISA) 0x000000BC (188) Microsoft ACPI-Compliant System
- (ISA) 0x000000BD (189) Microsoft ACPI-Compliant System
- (ISA) 0x000000BE (190) Microsoft ACPI-Compliant System
- (PCI) 0x0000000A (10) Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
- (PCI) 0x0000000A (10) Intel(R) 6 Series/C200 Series Chipset Family Thermal Control - 1C24
- (PCI) 0x0000000A (10) Intel(R) 6 Series/C200 Series Management Engine Interface - 1C3A
- (PCI) 0x00000010 (16) Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
- (PCI) 0x00000013 (19) Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C01
- (PCI) 0x00000013 (19) Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C09
- (PCI) 0x00000016 (22) High Definition Audio Controller
- (PCI) 0x00000017 (23) Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26
- (PCI) 0xFFFFFFF4 (-6) Realtek PCIe GBE Family Controller
- (PCI) 0xFFFFFFF5 (-5) Intel(R) 82579LM Gigabit Network Connection
- (PCI) 0xFFFFFFF6 (-4) Intel(R) HD Graphics Family
- (PCI) 0xFFFFFFF7 (-3) Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
- (PCI) 0xFFFFFFF8 (-2) Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10

## B.4 DMA Channel Assignments

- Direct memory access (DMA)
  - 4 Direct memory access controller

**Appendix**

**C**

**Mating  
Connector**

## C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model No.		
CN1	LVDS#1 Inverter Connector	JST	PHR-5	N/A	N/A
CN2	+12V Vin Connector	N/A	N/A	Power Cable	1702002010
CN3	USB Port #7, #8 Connector	Molex	51110-1050	USB Cable	1709100201
CN4	USB Port #5, #6 Connector	Molex	51110-1050	USB Cable	1709100201
CN5	USB Port #3, #4 Connector	Molex	51110-1050	USB Cable	1709100201
CN6	External +5VSB Power Input and PS_ON#	JST	PHR-3	ATX Cable	170220020B
CN7	LVDS#2 Inverter Connector	JST	PHR-5	N/A	N/A
CN8	Audio Connector	Molex	51021-1000	Audio Cable	1709100254
CN9	LVDS#1 Connector	HIROSE	DF13-30DS -1.25C	N/A	N/A
CN10	LVDS#2 Connector	HIROSE	DF13-30DS -1.25C	N/A	N/A
CN11	COM Port 2 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN12	LPT / Digital IO Port	Molex	51110-2650	Parallel Port Cable	1701260200

**SubCompact Board****G E N E - Q M 6 7**

CN13	COM Port 3 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN14	LPC Port	JST	SHR-12V-S-B	AAEON LPC Cable	1703120130
CN15	COM Port 4 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN16	UIM Connector	Molex	51021-0600	N/A	N/A
CN17	P/S2 KB/MS Connector	JST	PHDR-06V S	P/S2 KB/MS Cable	1700060152
CN18	External AUX Power and PS_ON#	JST	PHR-6	N/A	N/A
CN19	Touch Screen Connector	JST	SHR-9V-S-B	N/A	N/A
CN20	CPU Fan Connector	Molex	22-01-2035	N/A	N/A
CN22	+5Vout Connector	JST	PHR-2	2 Pins For HDD Power	1702150155
BAT1	External RTC Connector	Molex	51021-0200	Battery Cable	175011901C

Appendix

D

## RAID & AHCI Settings

## D.1 Setting RAID

OS installation to setup RAID Mode

Step 1: Copy the files below from “Driver CD -> Step 7-

RAID&AHCI\WinXP\_32“ to Disk

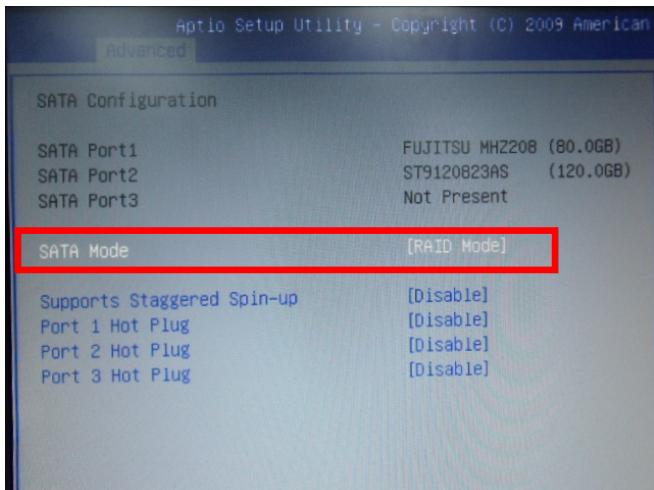


Step 2: Connect the USB Floppy (disk with RAID files) to the board



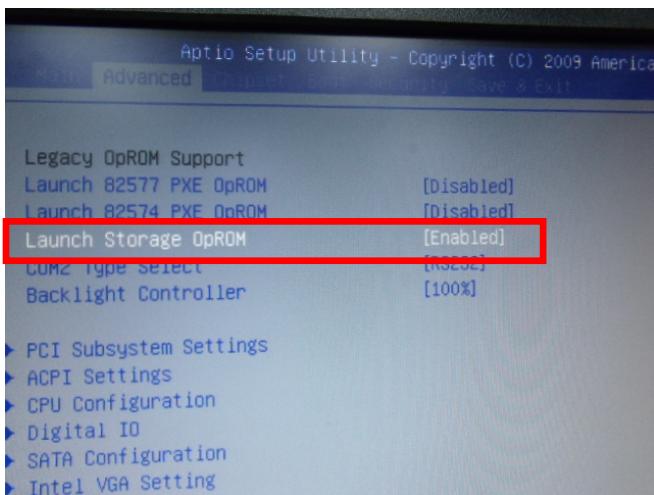
Step 3: The setting procedures “**In BIOS Setup Menu**”

**A: Advanced -> SATA Configuration -> SATA Mode -> RAID Mode**



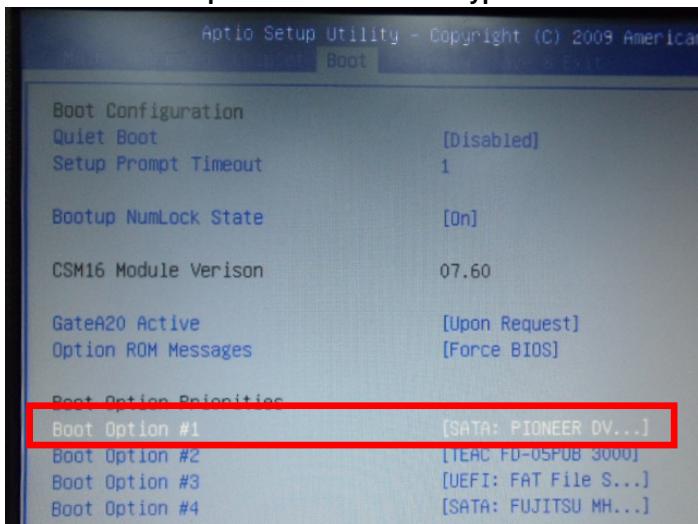
Step 4: The setting procedures “**In BIOS Setup Menu**”

**B: Advanced -> Launch Storage OpROM -> Enabled**



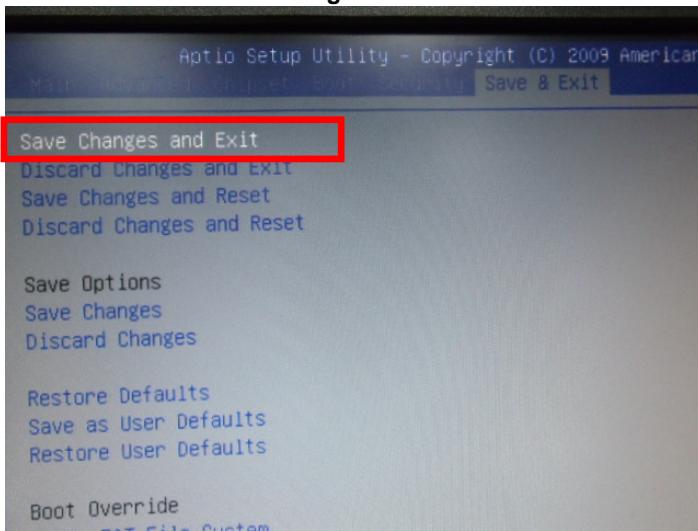
Step 5: The setting procedures “In BIOS Setup Menu”

**C: Boot -> Boot Option #1 -> DVD-ROM Type**

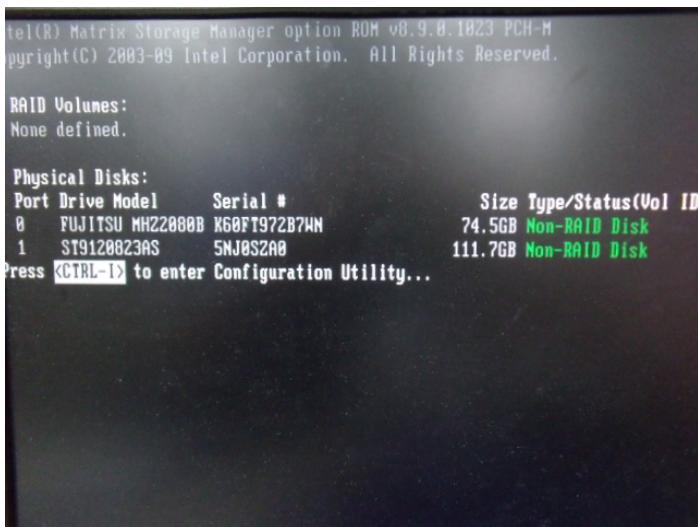


Step 6: The setting procedures “In BIOS Setup Menu”

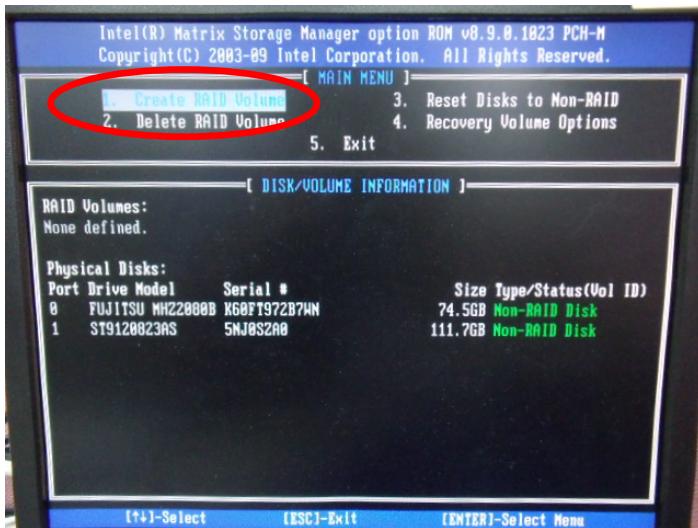
**D: Save & Exit -> Save Changes and Exit**



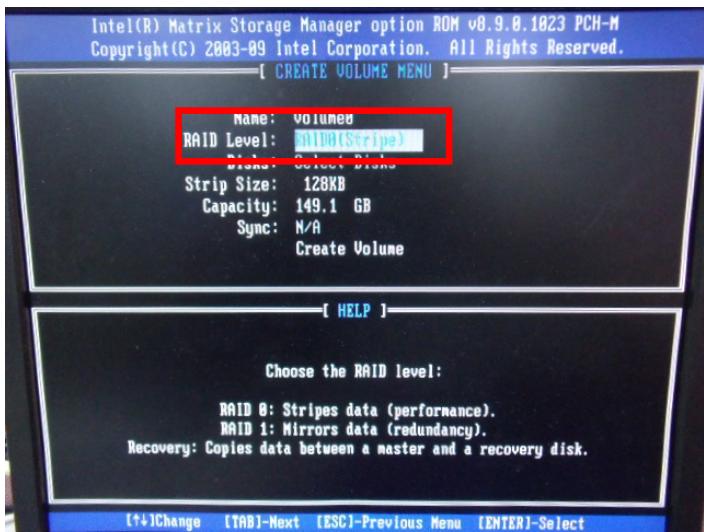
Step 7: Press **Ctrl-I** to enter **MAIN MENU**



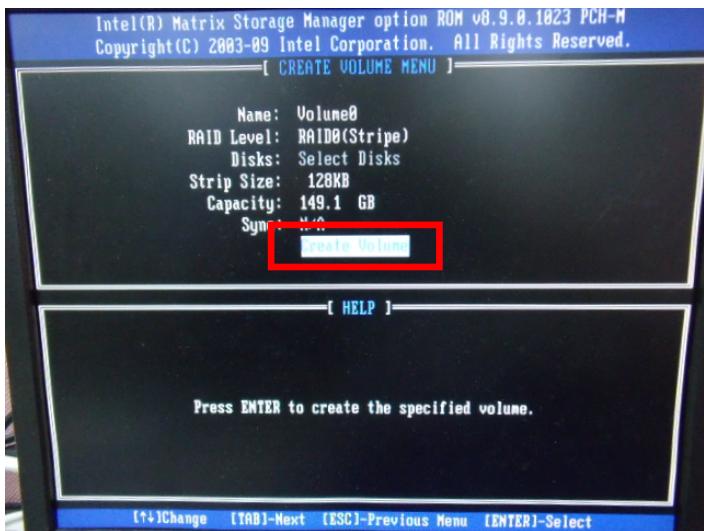
Step 8: Choose “1.Create RAID Volume”



## Step 9: RAID Level -&gt; RAID0(Stripe)



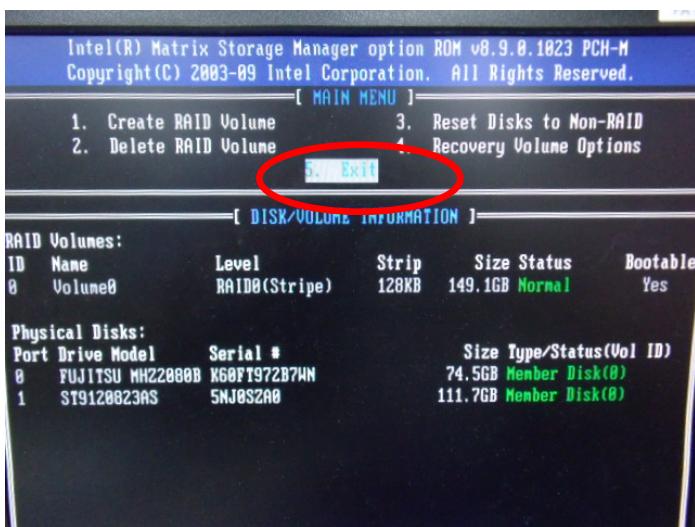
## Step 10: Choose "Create Volume"



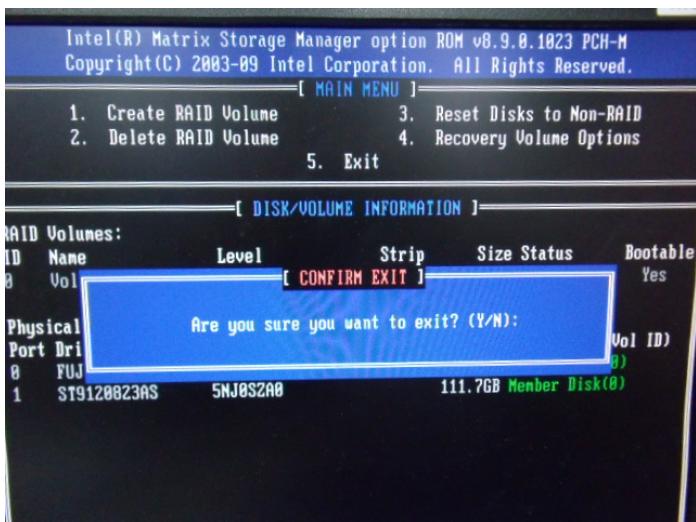
Step 11: Choose "Y"



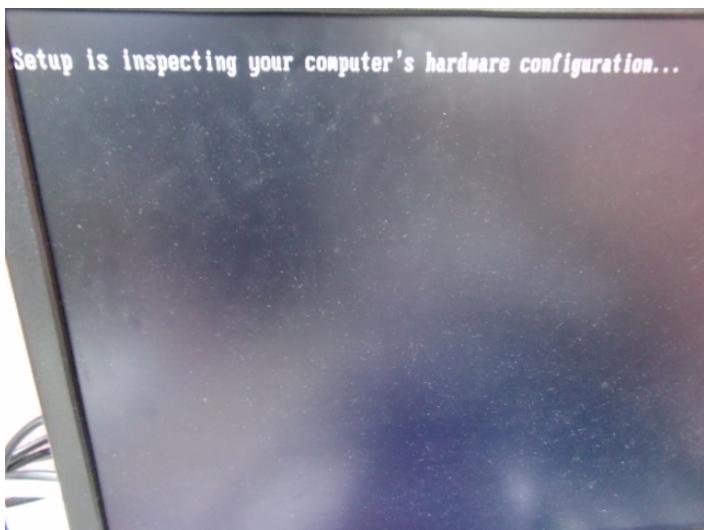
Step 12: Choose "5. Exit"



Step 13: Choose "Y"



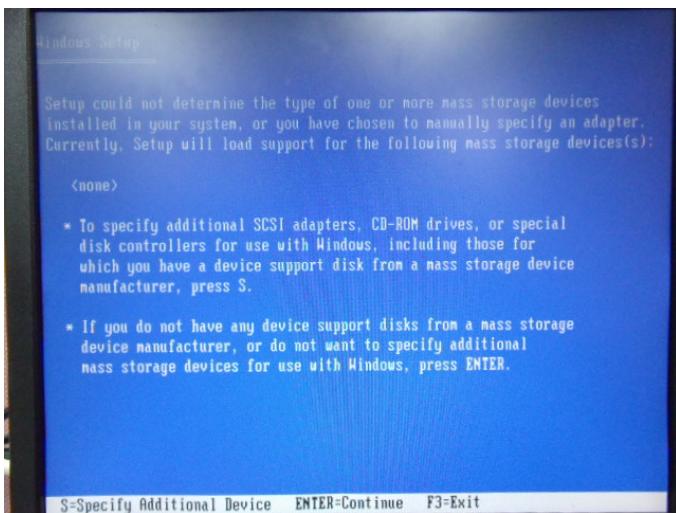
Step 14: Setup OS



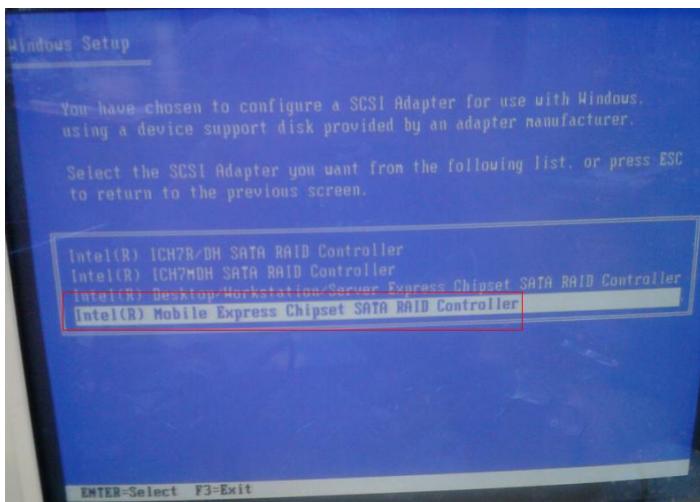
Step 15: Press “F6”



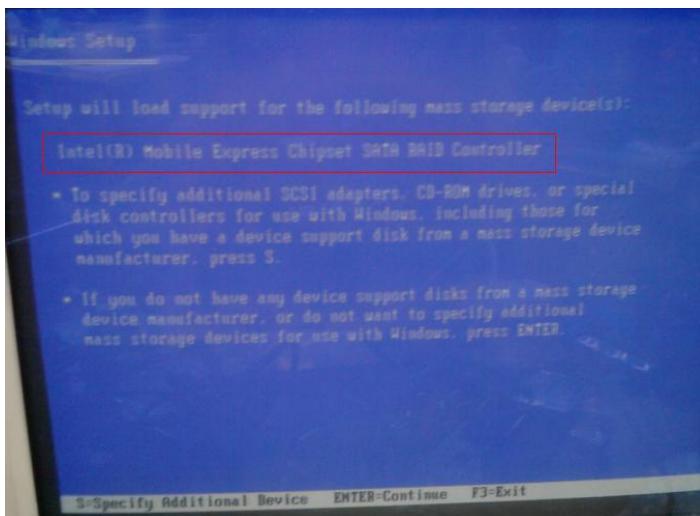
Step 16: Choose “S”



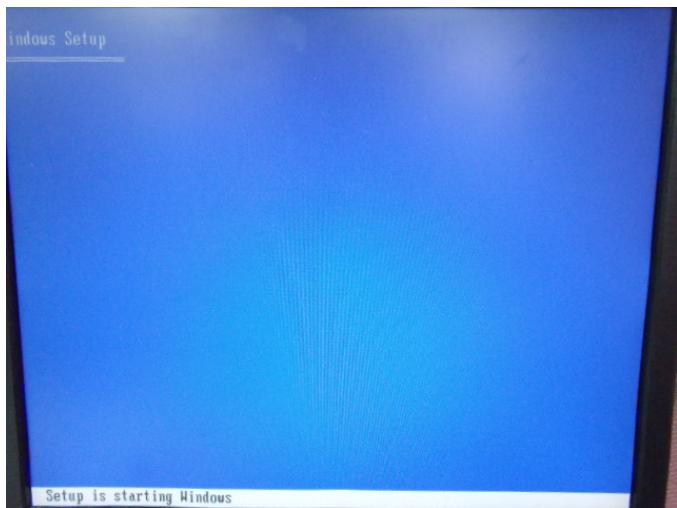
Step 17: Choose “Intel(R) Mobile Express Chipset SATA RAID Controller”



Step 18: It will show the model number you select and then press “ENTER”



Step 19: Setup is starting Windows



## D.2 Setting AHCI

OS installation to setup AHCI Mode

Step 1: Copy the files below from “Driver CD -> Step 7-

RAID&AHCI\WinXP\_32“ to Disk

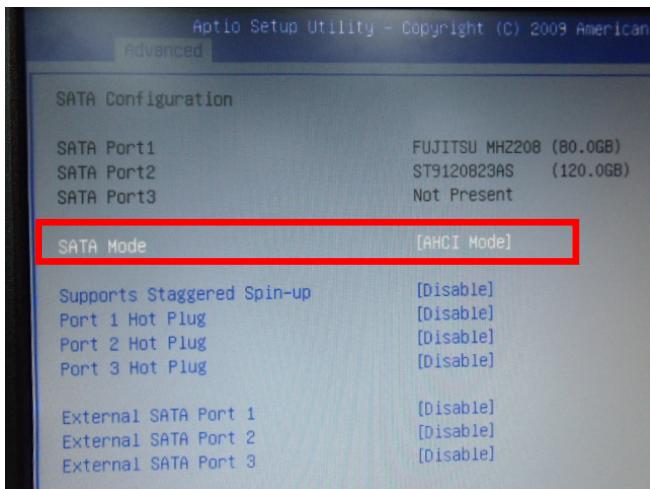


Step 2: Connect the USB Floppy (disk with RAID files) to the board



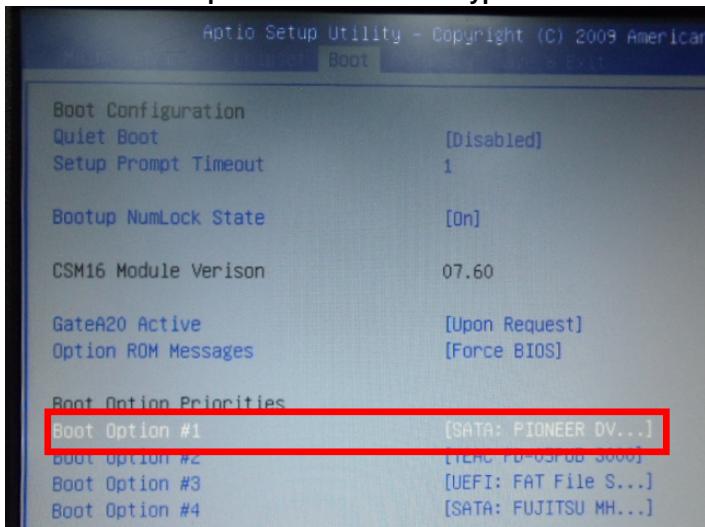
Step 3: The setting procedures “**In BIOS Setup Menu**”

**A: Advanced -> SATA Configuration -> SATA Configuration -> SATA Mode -> AHCI Mode**



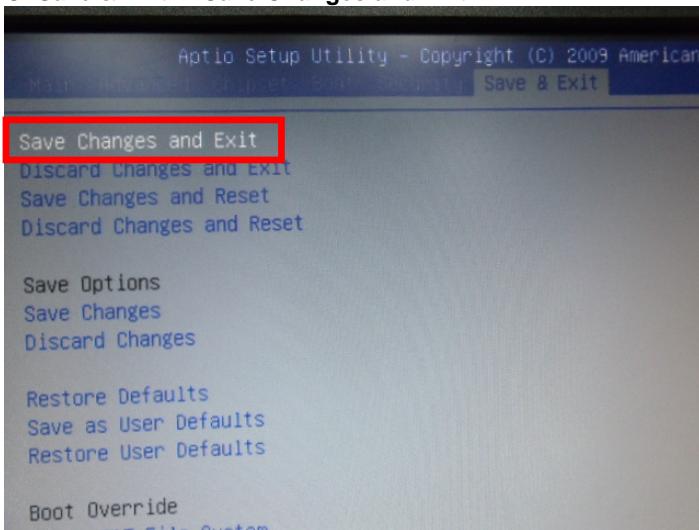
Step 4: The setting procedures “**In BIOS Setup Menu**”

**B: Boot -> Boot Option #1 -> DVD-ROM Type**

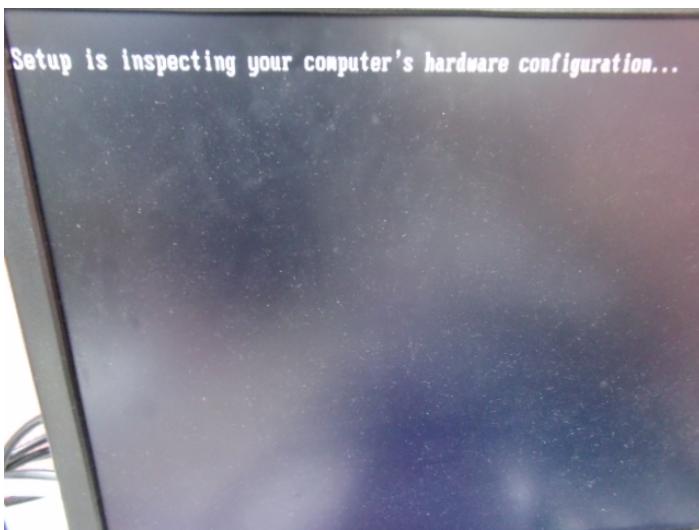


Step 5: The setting procedures “In BIOS Setup Menu”

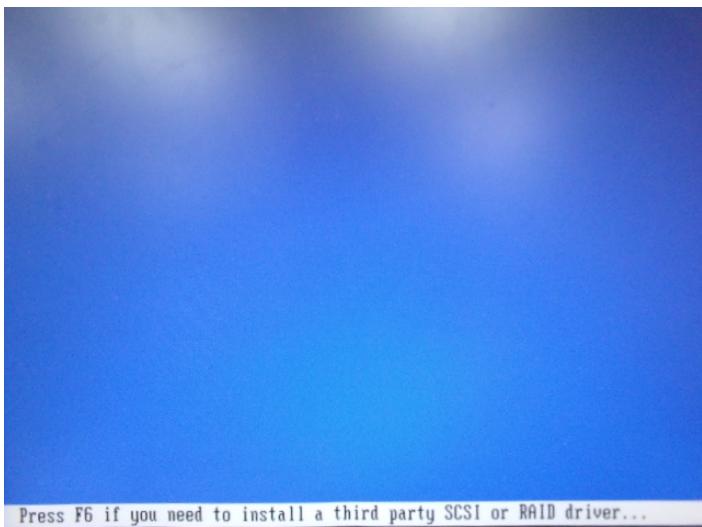
C: Save & Exit -> Save Changes and Exit



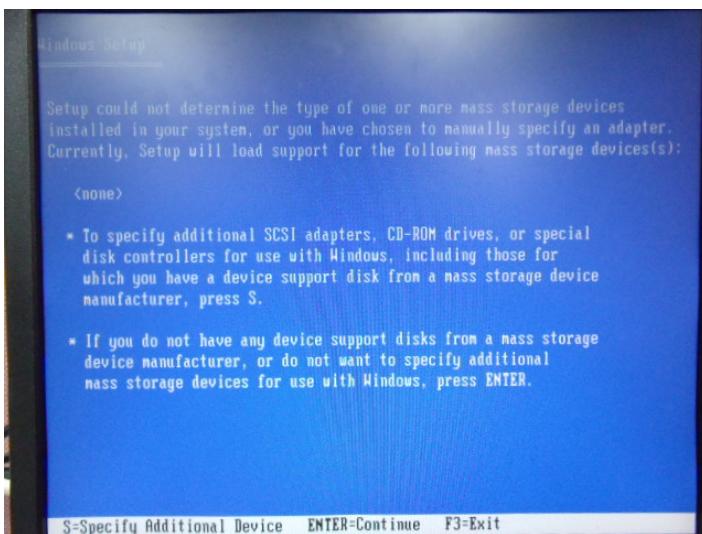
Step 6: Setup OS



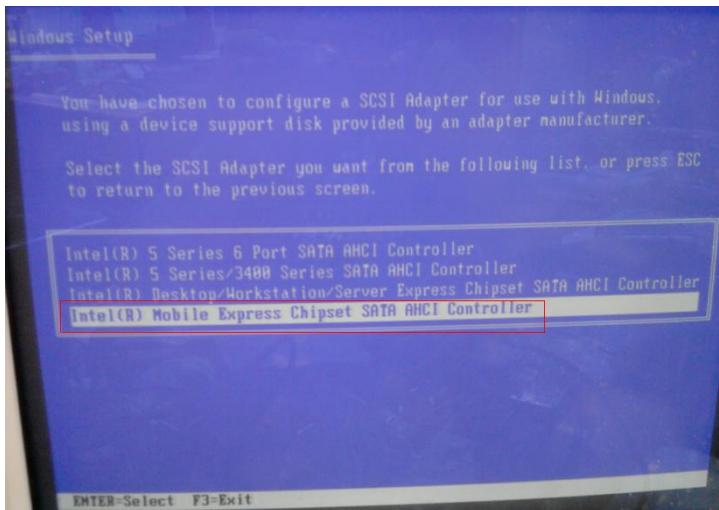
Step 7: Press “F6”



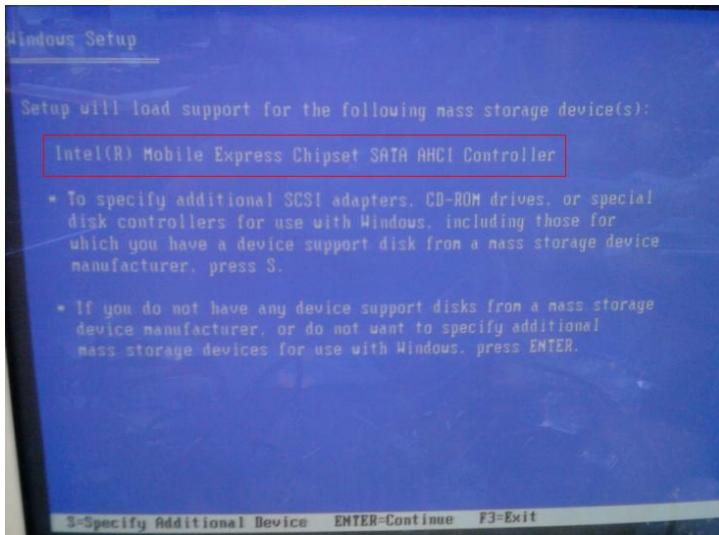
Step 8: Choose “S”



Step 9: Choose “**Intel(R) Mobile Express Chipset SATA AHCI Controller**”



Step 10: It will show the model number you select and then press “**ENTER**”



Step 11: Setup is loading files

